

Material No.: 9005-68 Batch No.: 0000228251

Manufactured Date: 2019/04/11 Retest Date: 2024/04/09

Revision No: 1

Certificate of Analysis

| Test | Specification | Result |
|---|---------------|--------|
| Assay ((CH ₃) ₂ CO) (by GC, corrected for water) | >= 99.5 % | 99.8 |
| Color (APHA) | <= 10 | < 5 |
| Residue after Evaporation | <= 5 ppm | < 1 |
| Titrable Acid (µeq/g) | <= 0.3 | 0.2 |
| Titrable Base (µeq/g) | <= 0.5 | < 0.1 |
| Water (H ₂ O) | <= 0.5 % | 0.2 |
| Solubility in H ₂ O | Passes Test | PT |
| Chloride (CI) | <= 0.2 ppm | < 0.2 |
| Phosphate (PO ₄) | <= 0.05 ppm | < 0.05 |
| Trace Impurities – Aluminum (Al) | <= 50.0 ppb | < 5.0 |
| Arsenic and Antimony (as As) | <= 5 ppb | < 5 |
| Trace Impurities - Barium (Ba) | <= 20.0 ppb | < 1.0 |
| Trace Impurities - Beryllium (Be) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Bismuth (Bi) | <= 20.0 ppb | < 10.0 |
| Trace Impurities - Boron (B) | <= 10.0 ppb | < 5.0 |
| Trace Impurities - Cadmium (Cd) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Calcium (Ca) | <= 25.0 ppb | 1.2 |
| Trace Impurities - Chromium (Cr) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Cobalt (Co) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Copper (Cu) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Gallium (Ga) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Germanium (Ge) | <= 10.0 ppb | < 10.0 |
| Trace Impurities - Gold (Au) | <= 20.0 ppb | < 5.0 |
| Trace Impurities - Iron (Fe) | <= 20.0 ppb | < 1.0 |

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|---|---------------|--------|
| Trace Impurities – Lead (Pb) | <= 10.0 ppb | < 10.0 |
| Trace Impurities - Lithium (Li) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Magnesium (Mg) | <= 20.0 ppb | < 1.0 |
| Trace Impurities - Manganese (Mn) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Molybdenum (Mo) | <= 10.0 ppb | < 5.0 |
| Trace Impurities - Nickel (Ni) | <= 10.0 ppb | < 5.0 |
| Trace Impurities - Niobium (Nb) | <= 50.0 ppb | < 1.0 |
| Trace Impurities – Potassium (K) | <= 10.0 ppb | < 10.0 |
| Trace Impurities - Silicon (Si) | <= 50.0 ppb | < 10.0 |
| Trace Impurities – Silver (Ag) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Sodium (Na) | <= 10.0 ppb | < 5.0 |
| Trace Impurities – Strontium (Sr) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Tantalum (Ta) | <= 50.0 ppb | < 5.0 |
| Trace Impurities - Thallium (TI) | <= 10.0 ppb | < 5.0 |
| Trace Impurities – Tin (Sn) | <= 20.0 ppb | < 10.0 |
| Trace Impurities – Titanium (Ti) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Vanadium (V) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Zinc (Zn) | <= 20.0 ppb | < 1.0 |
| Trace Impurities – Zirconium (Zr) | <= 10.0 ppb | < 1.0 |
| Particle Count - 0.5 µm and greater (Rion KS42AF) | <= 100 par/ml | 3 |
| Particle Count – 1.0 µm and greater (Rion KS42AF) | <= 8 par/ml | 1 |

For Microelectronic Use

Country of Origin: US

Packaging Site: Paris Mfg Ctr & DC

